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IRD CLASS FROM RTM

paragraph_id	segment_allocation	req_title	text	Add New Clarification Text
AM1-0020	FOS | CSMS	AM-1 Spacecraft Commands	The EOC shall have the capability to send (via EDOS/Ecom and the SN, GN, DSN, or WOTS) and the AM-1 spacecraft shall have the capability to receive spacecraft commands in CCSDS CLTUs (as defined in AM-1 ICD 106).	
AM1-0030	FOS | CSMS	AM-1 Instrument Commands	The EOC shall have the capability to send (via EDOS/Ecom and the SN, GN, DSN, or WOTS) and the AM-1 spacecraft shall have the capability to receive instrument commands in CCSDS CLTUs (as defined in AM-1 ICD 106).	

AM1-0050	FOS | CSMS	AM-1 Real Time H/K Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets and CLCWs) real time AM-1 spacecraft and instrument housekeeping telemetry packets (as defined in AM-1 ICD 106) via EDOS/Ecom and the SN, GN, DSN, or WOTS interfaces.	
AM1-0070	FOS | CSMS	AM-1 Recorded H/K Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets) recorded AM-1 spacecraft and instrument housekeeping telemetry packets (as defined in AM-1 ICD 106) via EDOS/Ecom and the SN, GN, DSN, or WOTS interfaces.	

AM1-0090	FOS | CSMS	AM-1 Dump Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets and CLCWs) AM-1 SCC, CTIU, and instrument microprocessor memory dump telemetry packets (as defined in AM-1 ICD 106) via EDOS/Ecom and the SN, GN, DSN, or WOTS interfaces.	
AM1-0120	FOS | CSMS	Pre-Launch AM-1 S/C Commands	The EOC shall have the capability to send and the AM-1 spacecraft shall have the capability to receive spacecraft commands in CCSDS CLTUs (as defined in AM-1 ICD 106) via pre-launch test configurations which include the AM-1 Spacecraft Checkout Station, Ecom, and EDOS or ETS.	

AM1-0125	FOS | CSMS	Pre-launch R/T H/K Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets and CLCWs) real time AM-1 housekeeping telemetry packets (as defined in AM-1 ICD 106) via pre-launch test configurations which include the AM-1 Spacecraft Checkout Station, Ecom, and EDOS or ETS.	

AM1-0130	FOS | CSMS	Pre-launch Recorded H/K Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets and CLCWs) recorded AM-1 housekeeping telemetry packets (as defined in AM-1 ICD 106) via pre-launch test configurations which include the AM-1 Spacecraft Checkout Station, Ecom, and EDOS or ETS.	

AM1-0135	FOS | CSMS	Pre-launch Dump Telemetry	The AM-1 spacecraft shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets and CLCWs) AM-1 SCC, CTIU, and instrument microprocessor memory dump telemetry packets (as defined in AM-1 ICD 106) via pre-launch test configurations which include the AM-1 Spacecraft Checkout Station, Ecom, and EDOS or ETS.	
AM1-0140	FOS | CSMS	Launch Telemetry	The SCS shall have the capability to send (in CADU format) and the EOC shall have the capability to receive (in EDUs containing CCSDS telemetry packets) AM-1 spacecraft telemetry data (as defined in AM-1 ICD-106) during spacecraft launch via launch configurations which include EDOS and Ecom.	

AM1-0150	FOS	SSIM Commanding	The EOC shall have the capability to send and the SSIM shall have the capability to receive AM-1 spacecraft and instrument commands in CCSDS CLTU format (as defined in AM-1 ICD-106).	
AM1-0160	FOS ~~| CSMS~~	SSIM R/T H/K Telemetry	The SSIM shall have the capability to send and the EOC shall have the capability to receive ~~(in EDUs containing CCSDS telemetry packets)~~ simulated real time AM-1 spacecraft and instrument housekeeping telemetry packets and Command Link Control Words (as defined in AM-1 ICD-106).	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.

AM1-0170	FOS ~~/ CSMS~~	SSIM Recorded H/K Telemetry	The SSIM shall have the capability to send and the EOC shall have the capability to receive ~~(in EDUs containing CCSDS telemetry packets)~~ simulated recorded AM-1 spacecraft and instrument housekeeping telemetry packets (as defined in AM-1 ICD-106).	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.
AM1-0200	FOS ~~/ CSMS~~	SSIM Dump Telemetry	The SSIM shall have the capability to send and the EOC shall have the capability to receive ~~(in EDUs containing CCSDS telemetry packets)~~ simulated AM-1 SCC, CTIU, and instrument microprocessor memory dump telemetry (as defined in AM-1 ICD-106).	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.

AM1-0215	FOS ~~CSMS~~	Project Data Base from AM-1 Vendor	The AM-1 spacecraft vendor shall have the capability to provide and the EOC shall have the capability to receive, AM-1 project data base information containing both spacecraft and instrument parameters.	
AM1-0220	CSMS	IST Toolkit Delivery	The ECS shall have the capability to provide and the MISR, MOPITT, MODIS, and CERES PIs/TLs shall have the capability to receive IST toolkit software, IST toolkit software upgrades, and IST toolkit documentation.	
AM1-0225	FOS	AM-1 Spacecraft Analysis Software	The AM-1 spacecraft vendor shall have the capability to provide and ECS shall have the capability to receive spacecraft analysis tools for implementation and integration into the EOC.	

AM1-0230	FOS	IST Toolkit Data Import	The IST toolkit shall have the capability to accept data from a science computing facility that supports PI/TL operations, which include the following data (at a minimum): a.instrument microprocessor memory loads. b.changes in the instrument parameters	
AM1-0240	FOS	IST Toolkit data export	The IST toolkit shall have the capability to provide data to a science computing facility that supports PI/TL instrument operations, which include the following data (at a minimum): a.Microprocessor memory dumps b.Instrument analysis results	
AM1-0270	FOS~~| CSMS~~	Flight Software Updates from SDVF	The AM-1 SDVF shall have the capability to send and ECS shall have the capability to receive AM-1 SCC flight software updates.	

AM1-0280	FOS ~~CSMS~~	Flight Software Dumps to SDVF	ECS shall have the capability to send and the AM-1 SDVF shall have the capability to receive AM-1 SCC flight software dumps.	
AM1-0310	NONE	Training to AM-1 Vendor	The ECS contractor shall provide and the AM-1 spacecraft vendor shall receive training on operations of the FOS.	
AM1-0315	NONE	Training to AM-1 PI/TLs	The ECS contractor shall provide and the AM-1 instrument teams shall receive training on operations of the IST toolkit.	
AM1-0320	NONE	Training from AM-1 Vendor	The AM-1 spacecraft vendor shall provide and the ECS contractor shall receive AM-1 spacecraft operations training.	
AM1-0330	NONE	Training from AM-1 PI/TL	The AM-1 instrument teams shall provide and the ECS contractor shall receive AM-1 instrument operations training.	

AM1-0340	FOS	Documentation from AM-1 Project	The AM-1 project shall have the capability to provide and ECS shall have the capability to accept and store AM-1 spacecraft and instrument hardware and software technical documentation.	
AM1-1000	FOS | CSMS	ECS RMA	ECS functions shall have an operational availability (computed as defined in the Functional and Performance Requirements Specification for the ECS) of 0.96 at a minimum and a mean down time (MDT) of four (4) hours or less, unless otherwise specified.	

AM1-1010	FOS	RMA-Critical R/T Functions	The ECS FOS shall have an operational availability of 0.9998 at a minimum and a MDT of one (1) minute or less for critical real time functions that support: a. Launch b. Early orbit checkout c. Disposal d. Orbit adjustment e. Anomaly investigation f. Recovery from safe mode g. Routine real time commanding and associated monitoring for spacecraft and instrument health and safety	
AM1-1020	FOS	RMA for non-critical R/T functions	The ECS FOS shall have an operational availability of 0.99925 at a minimum and a MDT of five (5) minutes or less for non-critical real time functions.	

AM1-1050	FOS | CSMS	AM-1 Uplink Rates	The EOC shall support several uplink rates to the spacecraft, which include at a minimum the following: a.1 0 kilobits per second (kbps) (SSAuplink) b. 1 kbps (S-band MA uplink) c. 125 bits per second (bps) (SSA uplink during contingency operations) d. 2 kbps (emergency operations via S-band DSN link)	
AM1-1060	FOS | CSMS	Simultaneous Telemetry Types	The EOC shall be capable of simultaneously receiving all AM-1 telemetry data types.	
AM1-1070	FOS | CSMS	Receive 2 16 kbps data streams	The EOC shall provide the capability to receive and process real-time data received as two 16 kbps data streams.	
AM1-1080	FOS | CSMS	S/C Recorder data up to 1.544 Mbps	The EOC shall provide the capability to receive and record spacecraft recorder data at rates up to 1.544 Mbps.	

AM1-1090	FOS | CSMS	SSIM Command Rates	The EOC shall be capable of providing CLTUs to the SSIM at the following data rates: a. 125 bps b. 1 kbps c. 2 kbps d. 10 kbps	
AM1-1100	FOS | CSMS	Two 16kbps streams from SSIM	The EOC shall be capable of receiving two housekeeping telemetry packet streams of 16 kbps from the SSIM.	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.
AM1-1110	FOS | CSMS	1 kbps telemetry from SSIM	The EOC shall be capable of receiving a health and safety telemetry packet stream from the SSIM at 1 kbps.	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.

AM1-1120	FOS | CSMS	16 kbps diagnostics/dump from SSIM	The EOC shall be capable of receiving a diagnostic telemetry/memory dump packet stream from the SSIM at 16 kbps.	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.
AM1-1130	FOS | CSMS	SSIM Recorder Dumps 256/512 kbps	The EOC shall be capable of receiving a spacecraft recorder housekeeping telemetry packet stream from the SSIM at 256 kbps or 512 kbps.	The SSIM outputs telemetry in CADU format. The EOC receives the telemetry as CCSDS packets and CLCWs. CADU-to-CCSDS packet conversion is performed by the ETS.

AM1-1150	FOS | CSMS	Loop Delay-Emergency R/T Commands	ECS shall contribute a loop delay of not greater than 2.5 seconds of the total system delay of five (5) seconds for emergency real-time commands, not including the time needed for command execution. The loop delay is measured from the originator to the spacecraft/instrument and back and only applies when a Tracking and Data Relay Satellite System (TDRSS) link is available for contact to the spacecraft.	